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Assignment D4

Combinatorial Algorithms for CS4B

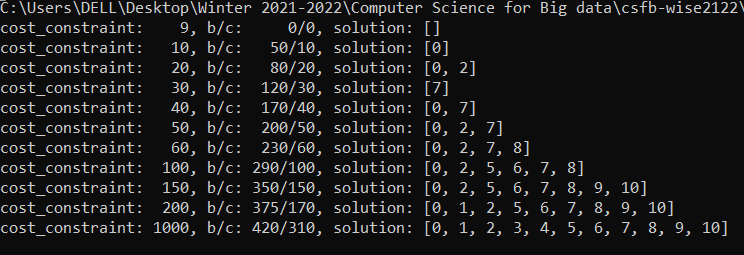
**Assignment Code:** After implementing all the assignment I pushed my code on my [Github](https://github.com/AhmedDiderRahat/csfb-wise2122/tree/main/assignment_7) link.

**Answer to the question no. 1**

The implementation is done in Qustion1.py file.

**Answer to the question no. 2**

After running the code, the following output is found:



**Answer to the question no. 3**

**Optimized total beefit:** Choose a sequence which has maximum benefits under the given cost costraint.

**Optimal total cost:** Get the sequence which has maximum benefits and also minimum cost within a certain cost constraint.

**Answer to the question no. 4**

The code of this question is implemented in Question\_5.py file. The optimal solution under cost constaint of 200 is given bellow:

**a) Total benefit:** 580

**b) Total Cost:** 200

**c) Task arrangement:** [0, 2, 5, 6, 7, 8, 13, 14, 15, 16, 17]

**Answer to the question no. 5**

When uncommented the last two task and run the code, the execution took much time then before. Because of,

1. Now there are 20 item so all possible combination become 2^20 = 1,048,576 > 1 M.
2. For 18 items, 2^18 = 262,144. So, total number of operation increse almost 4 times.

**Answer to the question no. 6**

For 20 tasks total solution space become, 2^20 = 1,048,576.

For 11 tasks total solution space become, 2^11 = 2048.

So, the expansion become: (1,048,576 - 2048) = 1046528 > 1M.